

Amendment and Response

Applicant: Daniel R. Marshall

Serial No.: 10/663,427

Filed: September 16, 2003

Docket No.: 10002305-4 (H303.190.103)

Title: SWALLOWABLE DATA RECORDER CAPSULE MEDICAL DEVICE

IN THE CLAIMS

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of the claims:

23. (Original) A method of recording data internally within a human body comprising:
ingesting an inert capsule within a digestive tract of a human body;
sensing a predetermined type of biological condition within the digestive tract with a
sensor disposed within the capsule; and
recording the sensed biologic condition as data in an atomic resolution storage device
memory module within the capsule while the capsule is in the digestive tract.
24. (Original) The method of claim 23, further comprising:
retrieving the sensed data from memory module when the capsule is outside of the
human body.
25. (Currently Amended) The method of claim 24, wherein the retrieving the sensed data
~~step the further comprises the step of:~~
capturing the capsule after passage of the capsule through the digestive tract.
26. (Currently Amended) The method of claim 23, further comprising ~~the step of:~~
transmitting the data from the capsule to a location outside of the human body while
the capsule is within the human body.
27. (Currently Amended) The method of claim 23, wherein the sensing a predetermined
type of biological condition ~~step further comprises the step of:~~
obtaining an image of a predetermined body location within the digestive tract.

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28. (Currently Amended) The method of claim 24~~23~~, wherein the ~~obtaining step~~ further comprises:

arranging a magnetic member in the capsule prior to the ingesting step~~the inert capsule~~;

arranging a magnet positioner outside the body; and

magnetically manipulating the relative position and orientation of the capsule within the digestive tract by using the magnet positioner to move the magnetic member in the capsule.

29. (Currently Amended) The method of claim 23, wherein the sensing a predetermined type of biological condition ~~step further~~ comprises ~~the step of~~:

exposing a chemical sensor array on the surface of the capsule to sense one or more chemical conditions in the digestive tract.

30. (Currently Amended) The method of claim 29, wherein the exposing a chemical sensor array ~~step further~~ comprises ~~the step of~~:

sensing at least one of a relative amount and an absolute amount of at least one or more digestive tract constituents.

31. (Currently Amended) The method of claim 30, wherein the sensing at least one of a relative amount and an absolute amount ~~step further~~ comprises ~~the step of~~:

sensing a pH of the digestive tract constituents.

32. (Currently Amended) The method of claim 23, wherein the sensing a predetermined type of biological condition ~~step further~~ comprises ~~the step of~~:

exposing an electrically based sensor in the capsule to sense biologic conditions.

33. (Currently Amended) The method of claim 32, wherein the exposing an electrically based sensor ~~step further~~ comprises ~~the step of~~:

sensing a temperature within the digestive tract.

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34. (Currently Amended) The method of claim 23, further comprising ~~the step of:~~
performing the sensing step at a predetermined body location within the digestive tract that corresponds to a known location for the predetermined biologic condition.
35. (Currently Amended) The method of claim 34, further comprising ~~the step of:~~
identifying the passage of the capsule at a predetermined body location within the digestive tract using at least one of a radiographic technique and an ultrasonic technique.
36. (Currently Amended) The method of claim 23, wherein the recording the sensed biologic condition ~~step further~~ comprises ~~the step of:~~
recording sensed data continuously within the digestive tract.
37. (Currently Amended) The method of claim 23, wherein the recording the sensed biologic condition ~~step further~~ comprises ~~the step of:~~
initiating and maintaining recording of the sensed data when the sensed data reaches a predetermined value of a predetermined biologic condition.
38. (Original) A method of recording data about biological conditions within a human body, the method comprising:
placing a capsule within a digestive track of a human body, the capsule including a sensor and a storage device comprising an atomic resolution storage device;
sensing a biological condition within the human body with the sensor; and
performing one or more logical operations using the sensed biological condition; and
selectively recording the sensed biological condition to the storage device based upon the logical operations.
39. (Original) The method of claim 38, wherein sensing a biological condition comprises:
receiving video of the biological condition via a video receiver.

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40. (Original) The method of claim 38, wherein performing one or more logical operations comprises:
- accessing programmable logic from the storage device.
41. (Original) The method of claim 38, wherein selectively recording the sensed biological condition comprises:
- generating an electron beam current; and
 - bombarding a storage area of the atomic resolution storage device with the electron beam current to record data representative of the sensed biological condition.
42. (Original) The method of claim 41, further comprising:
- positioning the storage area to be bombarded by the electron beam current.